

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/001952

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H01Q 21/00, H04B 7/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H01Q, H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KYRITSI, P, "MIMO capacity in free space and above perfect ground: theory and experimental results" In: THE 13th IEEE INTERNATIONAL SYMPOSIUM ON PERSONAL, INDOOR AND MOBILE RADIO COMMUNICATIONS, 2002. 15-18 Sept 2002, Vol. 1, pages 182-186, INSPEC AN 7690963 see Chapter II and IV and Abstract, Introduction and Figures 1-2  --	1-77

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

18 March 2005

Date of mailing of the international search report

22-03-2005

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. +46 8 666 02 86

Authorized officer

Rune Bengtsson /OGU

Telephone No. +46 8 782 25 00

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DRIESSEN, P.F. et al. "On the capacity formula for multiple input-multiple output wireless channels: a geometric interpretation"  In: 1999 IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, 1999. ICC '99. Vancouver, BC, Canada, 6-10 June 1999, Vol 3, pages 1603-1607, INSPEC AN: 6460567,  see Chapter II/A.Line-of-sight channels and Chapter I</p> <p>--</p>	1-77
A	<p>HUTTER, A.A et al. "Analysis of MIMO capacity gains for indoor propagation channels with LOS component"  In: THE 13th IEEE INTERNATIONAL SYMPOSIUM ON PERSONAL, INDOOR AND MOBILE RADIO COMMUNICATIONS, 2002, 15-18 Sept 2002, Vol 3, pages 1337-1341, INSPEC AN: 7678098  see Abstract and Chapter III and Figures 2,3</p> <p>--</p>	1-77
A	<p>3rd AusCTW, Feb. 4-5, 2002 Ying Tan et al:  "Spatial Characterization of Indoor Radio Channel Measurements at 2.5 GHz"  see Chapter III, Chapter I, Abstract and Figures 7,8 and Tables 1-4</p> <p>--</p>	1-77
A	<p>STURZEBECHER, D et al. "MMIC antenna front end for optically distributed MMW antennas"  In: IEEE MTT-S INTERNATIONAL MICROWAVE SYMPOSIUM DIGEST, 1995, Orlando, FL, USA, 16-20 May 1995, Vol 3, pages 1107-1110, INSPEC AN: 5016593,  see Introduction and Abstract</p> <p>--</p>	1-77
A	<p>US 6377558 B1 (DENT), 23 April 2002 (23.04.2002), abstract</p> <p>--  -----</p>	1-77

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## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 78 and 79  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
  
Since claim 78 is characterized by an unspecified number of devices, namely "a plurality of devices in"
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

01/03/2005

International application No.

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US 6377558 B1 23/04/2002

AU	755338 B	12/12/2002
AU	2874799 A	25/10/1999
BR	9909505 A	12/12/2000
CN	1304567 T	18/07/2001
EP	1070367 A	24/01/2001
ID	27433 A	00/00/0000
US	20020060993 A	23/05/2002
US	20020080066 A	27/06/2002
WO	9952181 A	14/10/1999

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